



Nissan GTR Alpha Fuel System

The goal of AMS is to provide the highest quality, best performing products available. By utilizing research and development, and rigorous testing programs AMS will never compromise the quality or performance of our products. In addition, AMS will only provide the finest customer service offering only parts and advice that are in the best interests of the customer. AMS was built on a foundation of integrity. This is who we are; this is what you can count on.

A vehicle modified by the use of performance parts may not meet the legal requirements for use on public roads. Federal and state laws prohibit the removal, modification, or rendering inoperative of any part or element of design affecting emissions or safety on motor vehicles used for transporting persons or property on public streets or highways. Use or installation of performance parts may adversely affect the drivability and reliability of your vehicle, and may also affect or eliminate your insurance coverage, factory warranty, and/or new OEM part warranty. Performance parts are sold as-is without any warranty of any type. There is no warranty stated or implied due to the stresses placed on your vehicle by performance parts and our inability to monitor their use, tuning, or modification.

These instructions are provided as a guide only as there are many variables that cannot be accounted for concerning your particular vehicle, including but not limited to model year differences, model differences, the presence of non-OEM parts, and modifications that may already be or were previously installed. A basic knowledge of automotive parts and systems is helpful but a better understanding of the parts and systems on your particular vehicle may be required.

If you have any questions or issues at any time during the installation of your AMS product(s) please call us for technical assistance. The AMS tech line can be reached during business hours at 847-709-0530 for AMS products only.

Packing List:

- Fuel pump mounting plate with built in regulator
- Fuel filter and distribution block assembly
- 3 - Hose clamps
- 7 - Hoses
- 2 - Large electrical ring terminals
- 2 - Small electrical ring terminals
- 2 - M5 nuts with washers
- 2 - M6 nuts with washers
- 2 - 8AN fuel pump fittings with sealing washers
- 2 - Bosch fuel pumps
- Fuel pump re-wire supplies and relays
- Length of grommet for fuel tank

- **The installation of this fuel system is fairly involved, most of the assembly must be done inside the tank and some safety precautions should be taken before starting work. Keep ALL possible sources of spark or flame AWAY from the work area in and around the vehicle AT ALL TIMES!**

- Before beginning installation run the vehicle as low on fuel as possible, it is much easier to work inside of the gas tank with little to no fuel in it.
- Work in a well ventilated area and roll both car windows down.
- Disconnect the negative terminal of your battery.
- Remove your passenger seat. This isn't required but it makes the job a lot easier and opens up the work area quite a bit.

1. Begin by removing the passenger side portion of the rear seat. This is done by pulling on the lever under the front-center of it and then pulling the seat up and forward.

2. Remove the fuel tank access panel: the fasteners that hold it in will stay on the car but they turn clockwise to line up with their holes and release the cover. Once the cover is loose disconnect the 2 connectors going to the sending unit and pull the cover back.



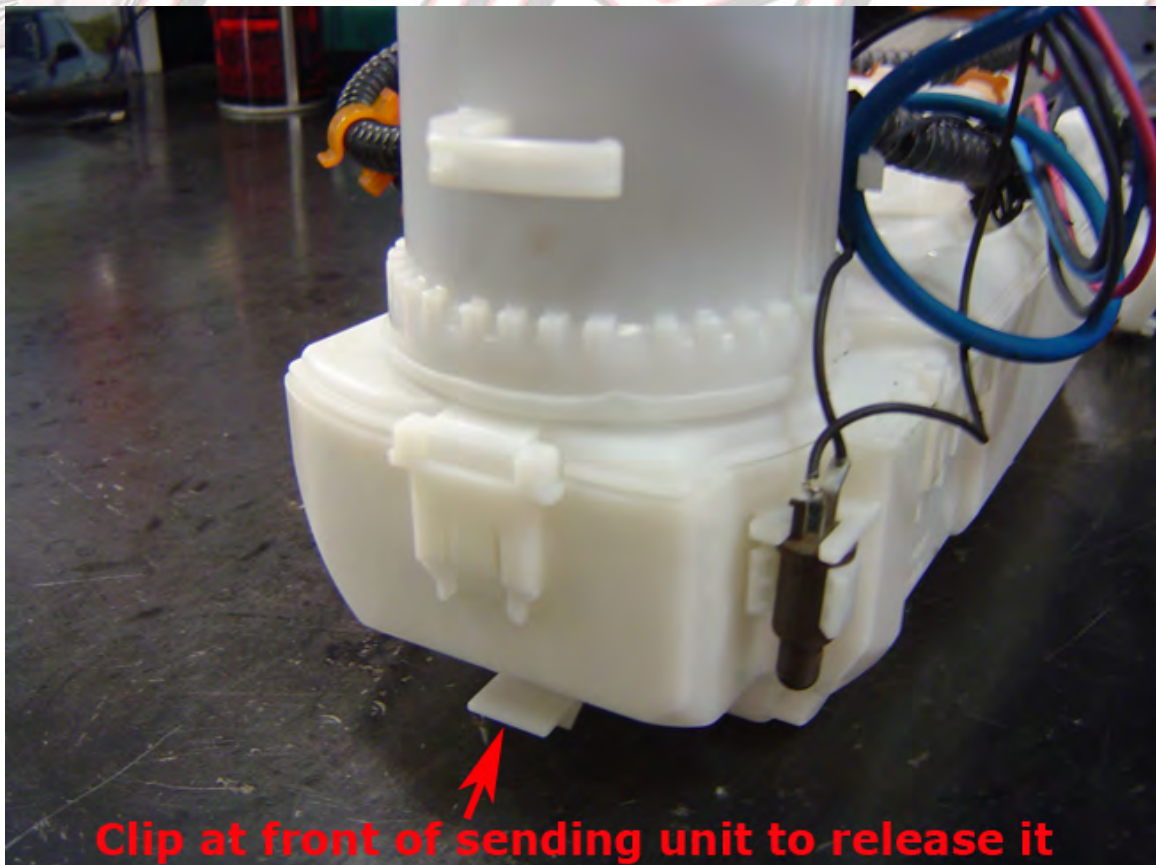
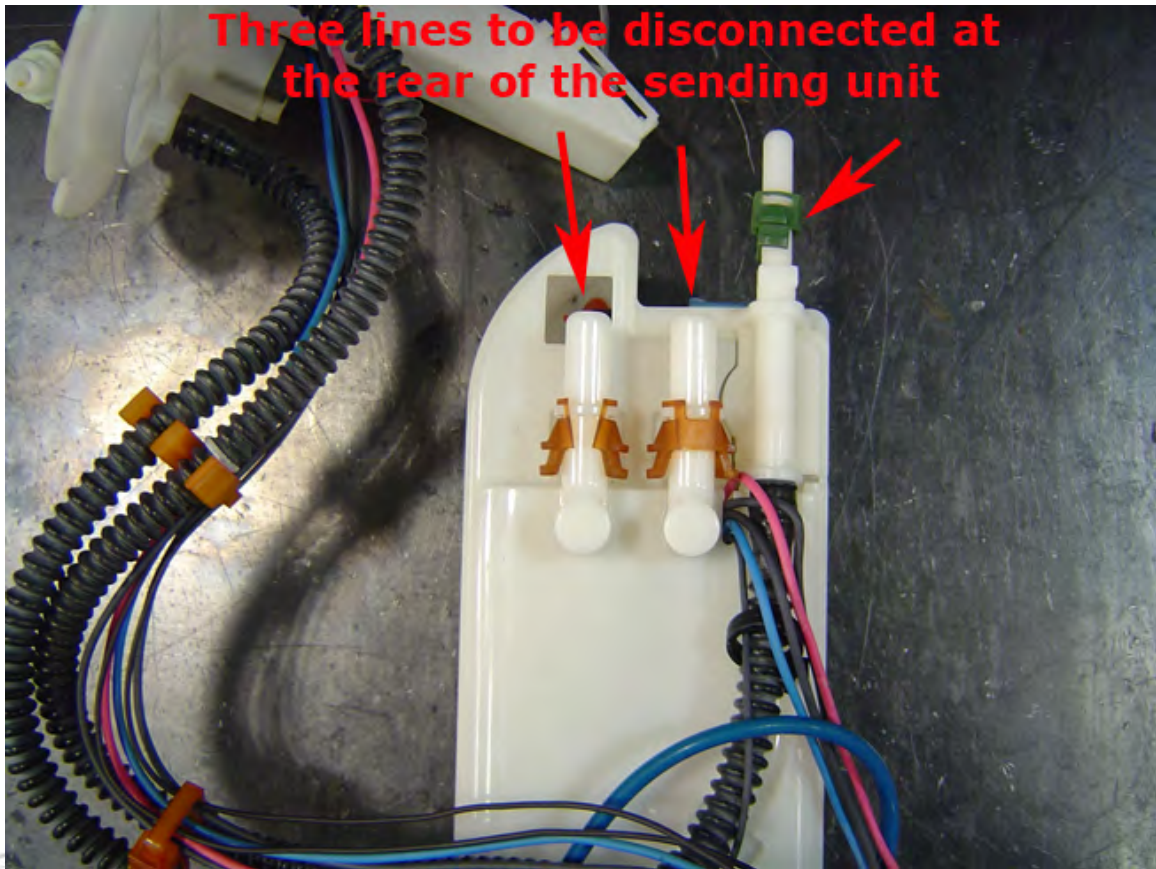
3. Disconnect both fuel lines from the sending unit. This is done by pinching the white clips and pulling the line back. The hose and fitting will pull off but the white clips will stay on the sending unit. This may take a bit of twisting and pulling. Have towels handy to clean up fuel that will most likely come out of these connections.



4. You can now remove the fasteners holding the sending unit plate down and remove the sending unit plate. Pull the upper portion of the sending unit out; the hoses and wires are long enough that it can be put off to the side.



5. You can now begin the removal of the in-tank portion of the fuel sending unit. There are three lines on the back of the sending unit that must be disconnected; these lines use the same style connector as the lines on the top portion of the sending unit. Then reach under the front center of the unit and it can be unclipped, slide forward to release it and then remove from the fuel tank. If you find it easier to unclip it to slide it forward for easier access to the lines you can remove the lines after.



6. Now that the sending unit is completely out of the gas tank you can begin the disassembly. Begin by cutting off both hoses that go to the upper sending unit and the single hose that goes to the return fitting on the lower portion of the sending unit. Be very careful cutting hoses off of their fittings, you don't want to cut into the plastic under the hose. The best way to do this is cut off the hose about $\frac{1}{4}$ " from where the plastic barb ends inside the hose and then cut parallel with the hose, this will make the hose begin to split so you can see the plastic barb as you are cutting. Refer to the pictures below.



2.

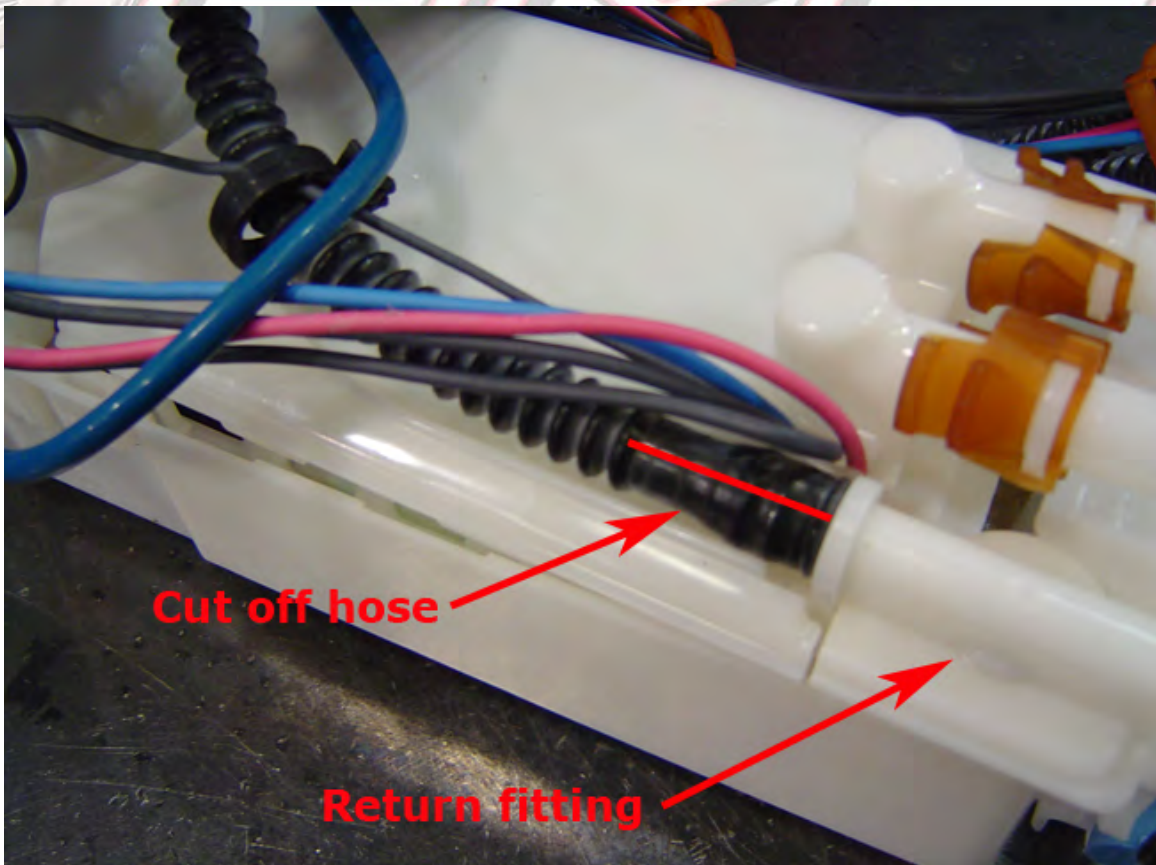
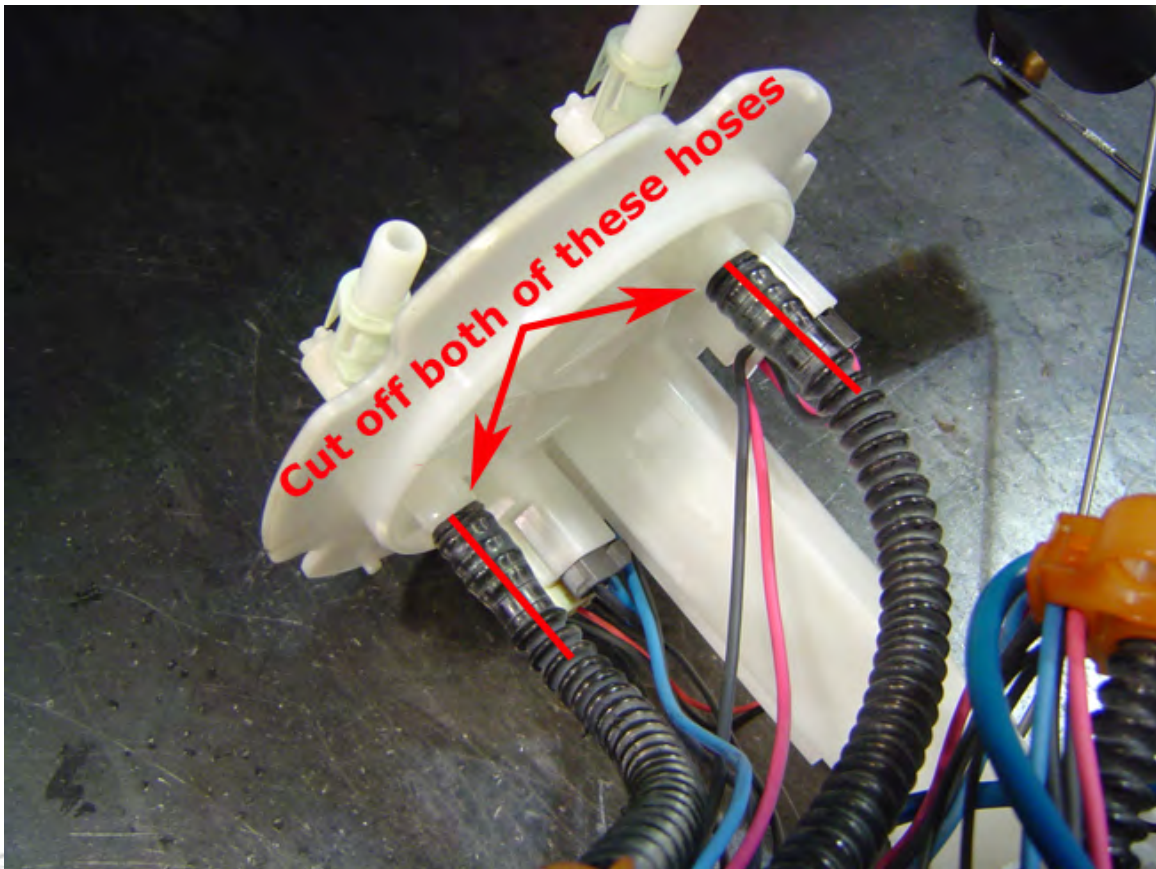
Start slicing parallel down the hose.



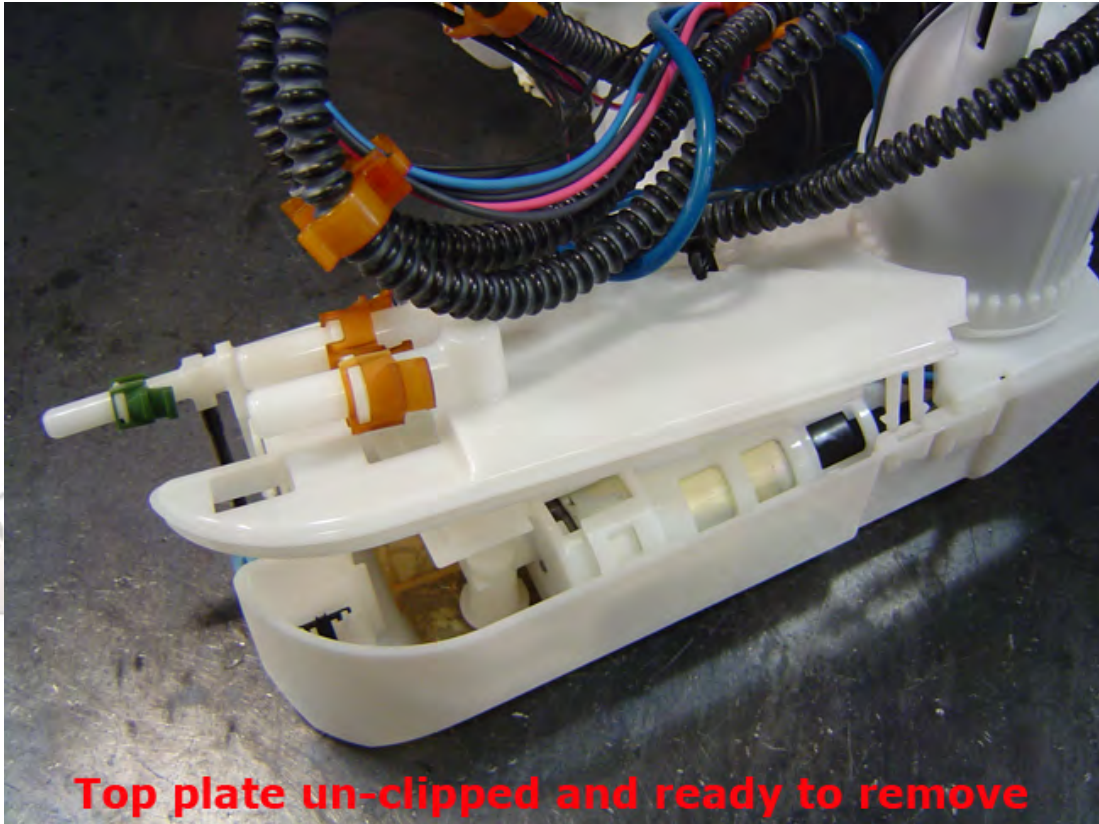
3.

Continue cutting, hose will split for easier removal.

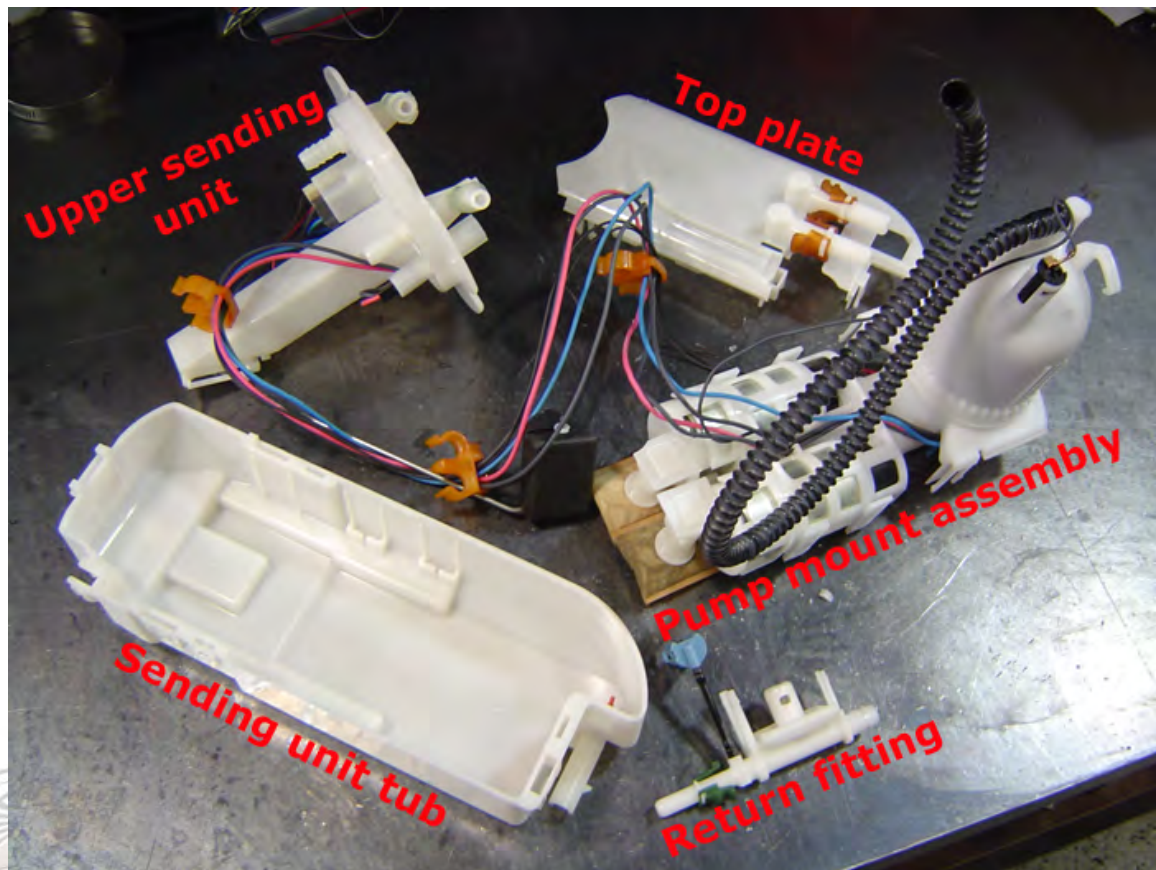




Next you can separate the top plate and the sending unit tub. This is done by releasing numerous clips that are around it. To release the clips you gently pull up the center plastic tab and then pinch the other two tabs together to release the clip. Also remove the return fitting and pump mount assembly. Don't forget to unclip the fuel temp sensor from the tub and note its orientation. This will be getting re-installed later on.

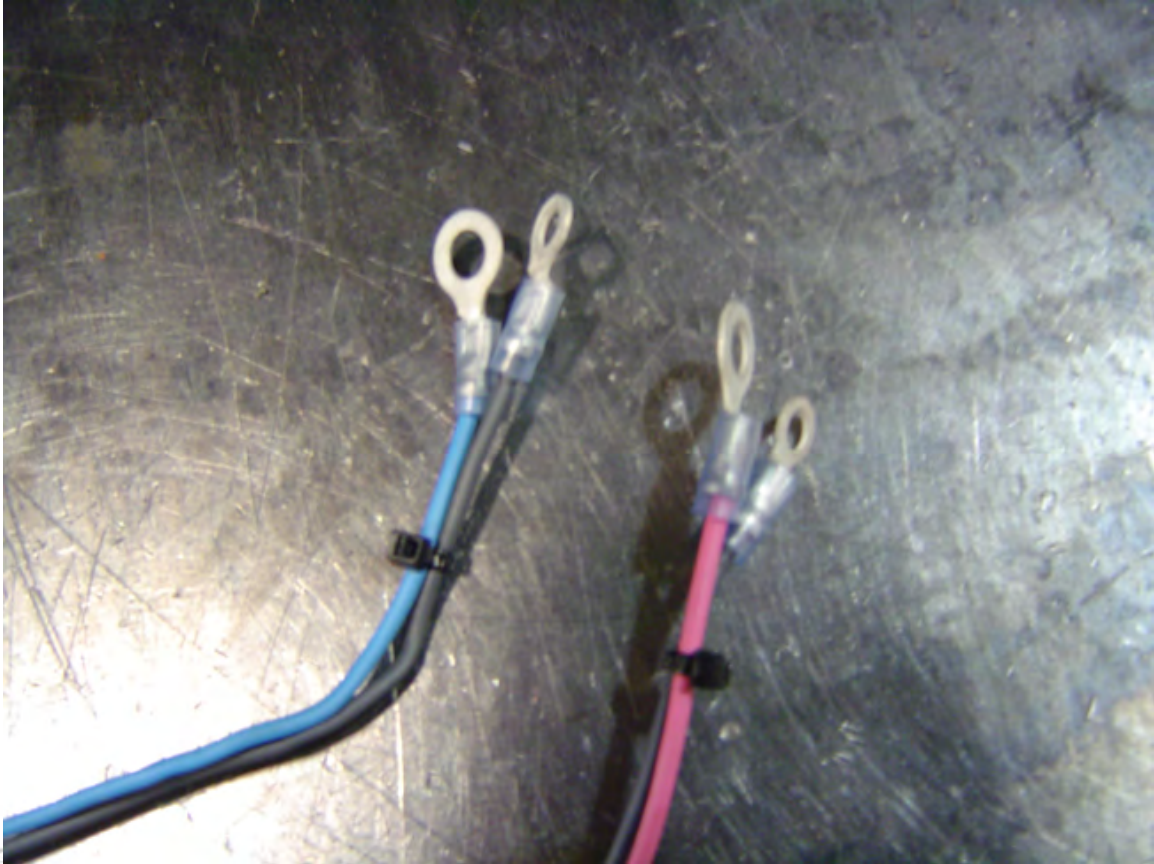


Once everything is apart you should end up with this:



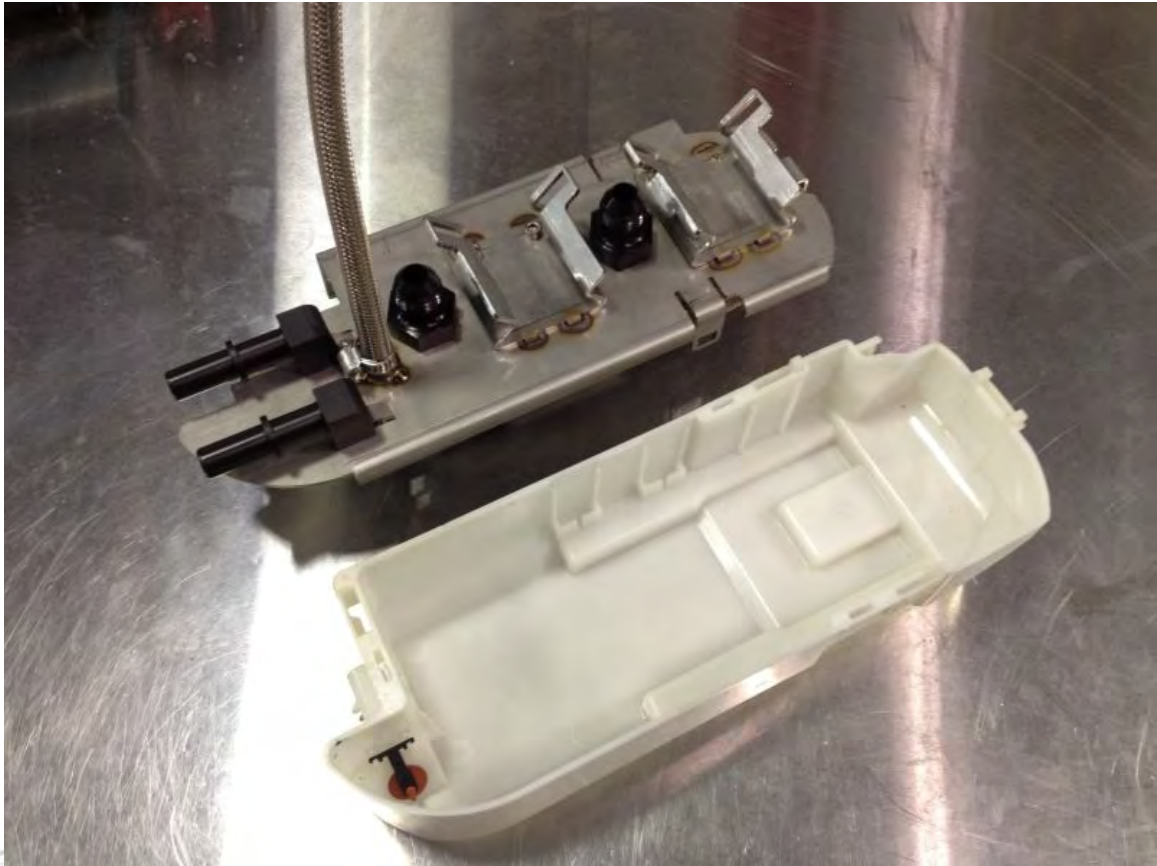
7. You can now disconnect the wiring harness from the pump mount assembly. You will not be using the original connectors so you can just cut them off **10 inches** before the fuel pump connector. In the harness for the fuel pump that has a red wire there is an additional small black wire, when you cut off the harnesses you can just leave the wire with the pump mount assembly. Keep each ground wire with their power wire, tape them or zip tie them together in the meantime before you connect them to the fuel pumps.

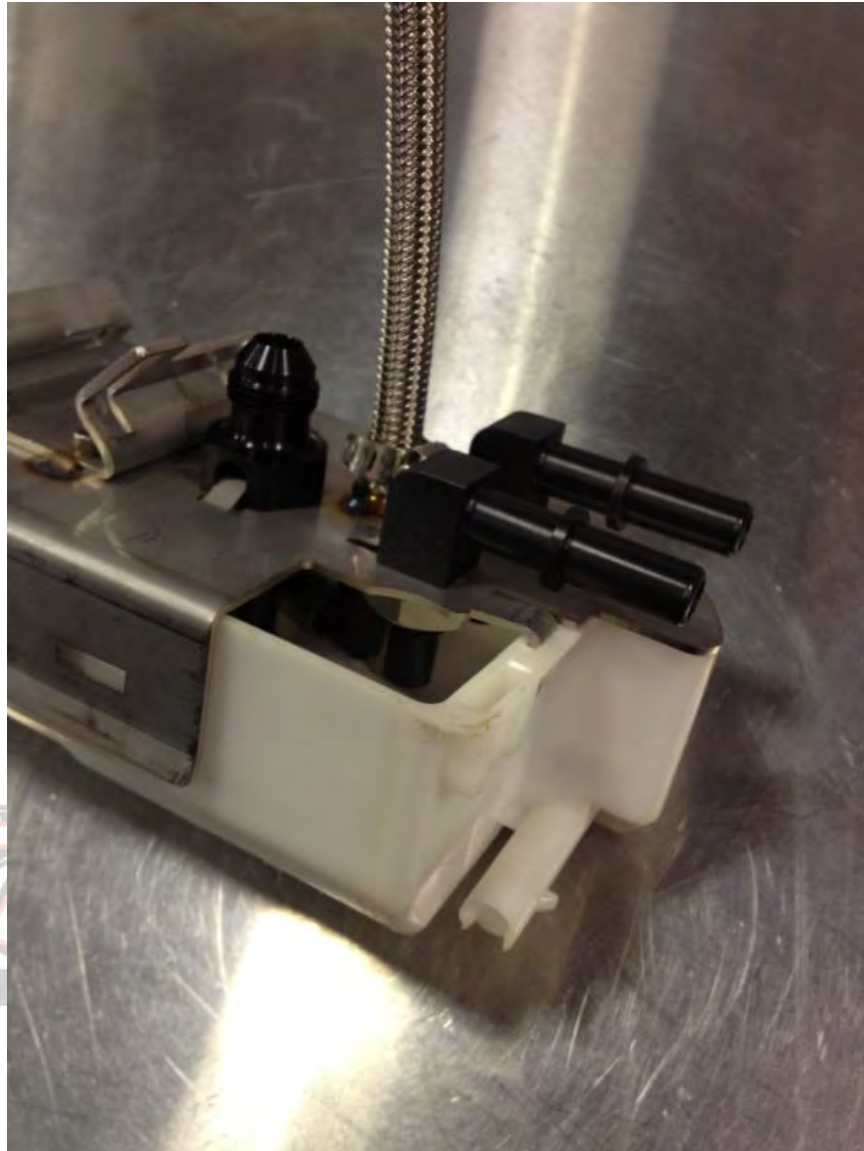
8. Now it is time to prepare the harness for the new pumps. Install the two larger ring terminals onto the positive wires (red and blue) and the smaller ring terminals onto the two ground wires (black).



At this point you are now done with the pump mount assembly and the top plate, you can put them aside.

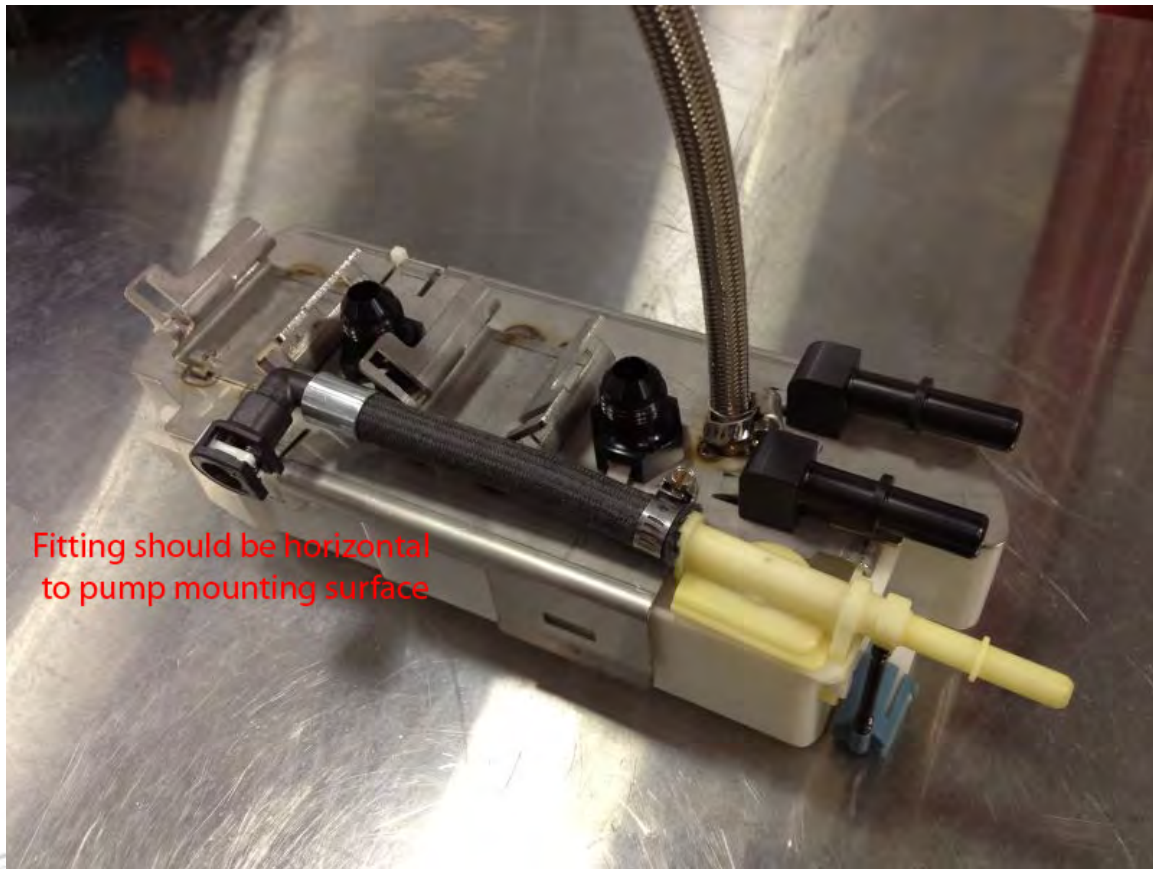
9. Next, install the pre-assembled AMS fuel pump mount top plate assembly onto the factory sending unit tub; it snaps into place very tightly and pliers may be needed to fully engage the clips.





10. Install the short hose assembly onto the return fitting as show below. The fitting should face to the side and be horizontal. It's easier to install it onto the return fitting before clipping the return fitting into the pump mount assembly. The worm screw should face straight up.

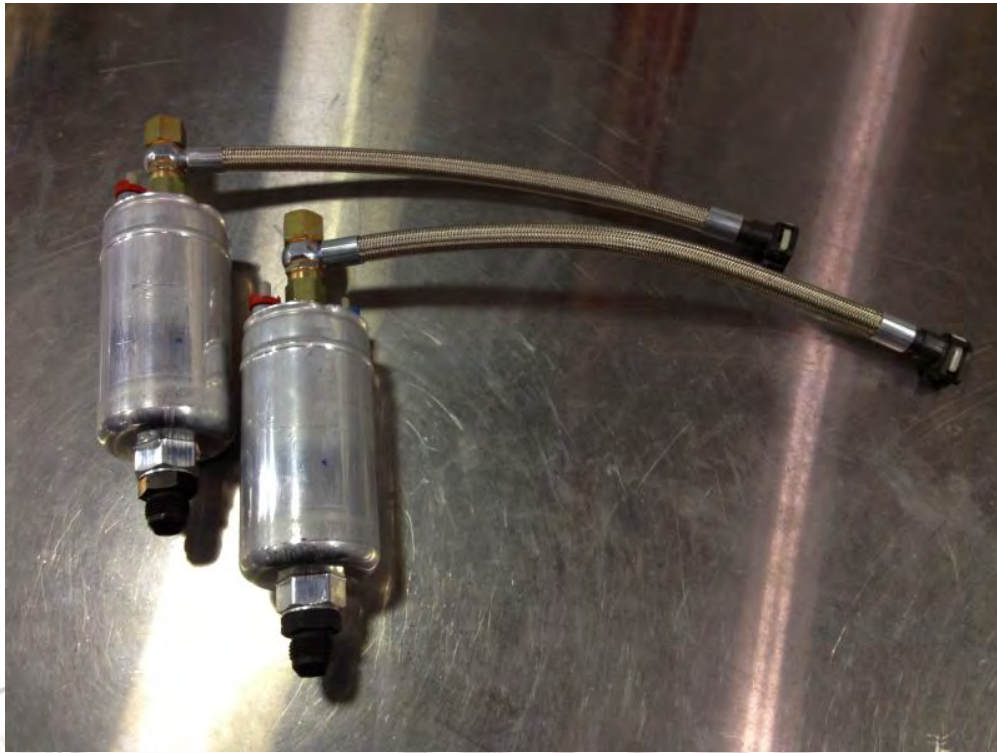
11. Install the return fitting, it will also clip into place. If the clips from the in-tank hoses are still on the fittings at this point remove them and put them back on the lines.



12. Next you will be preparing the fuel pumps for installation, find the two lines that have banjo fittings on one end and quick connect fittings on the other, these are the fuel pump outlet lines. Install the lines on the outlet of the fuel pumps using the supplied nuts and washers. Clock as shown below, making sure that the white clip on the fitting is facing up.



13. Next install the -8 AN fittings into the inlets of the fuel pumps using the supplied crush washers.



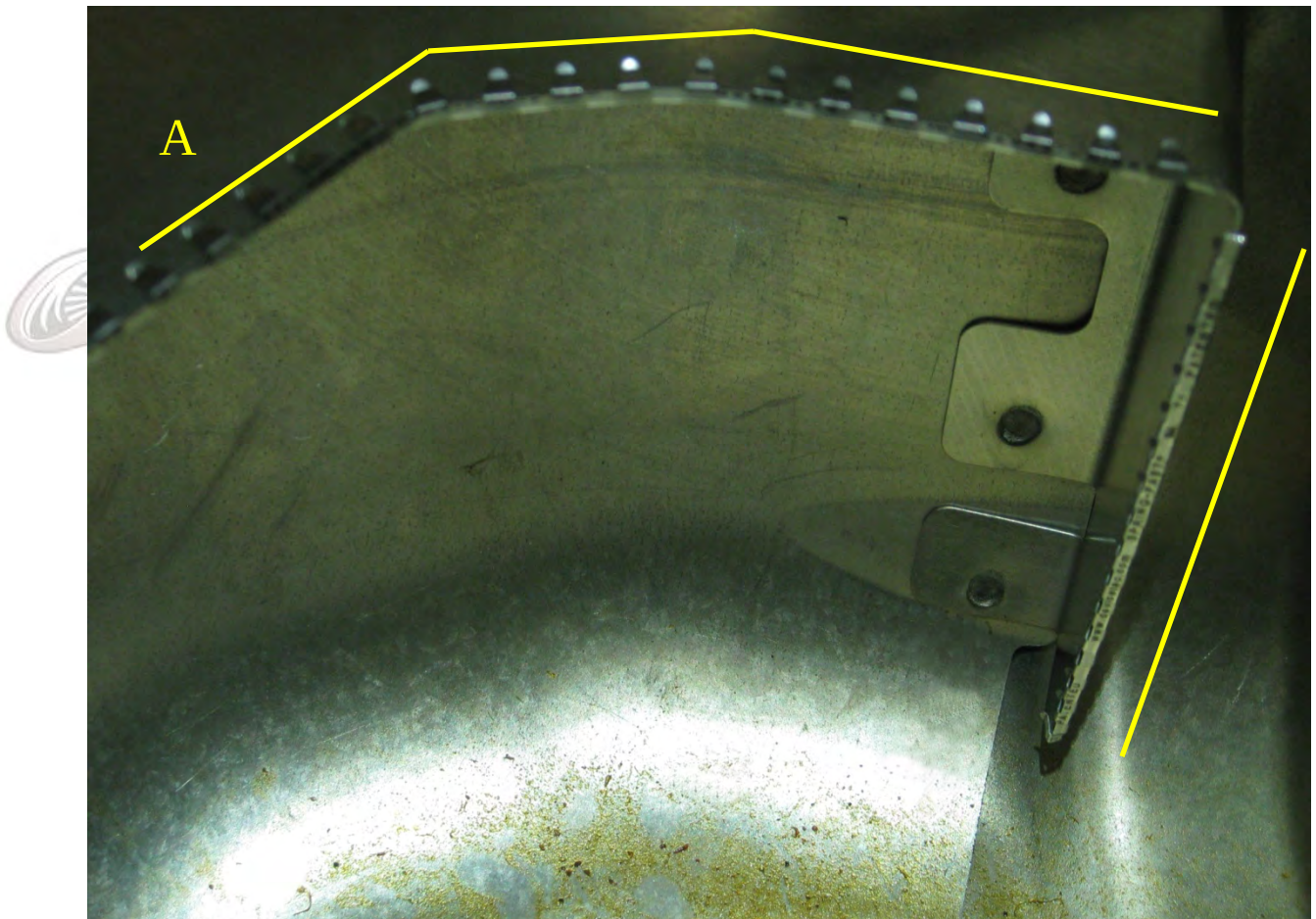
14. Connect the fuel feed line to the fuel filter, line it up with the fitting as pictured below.

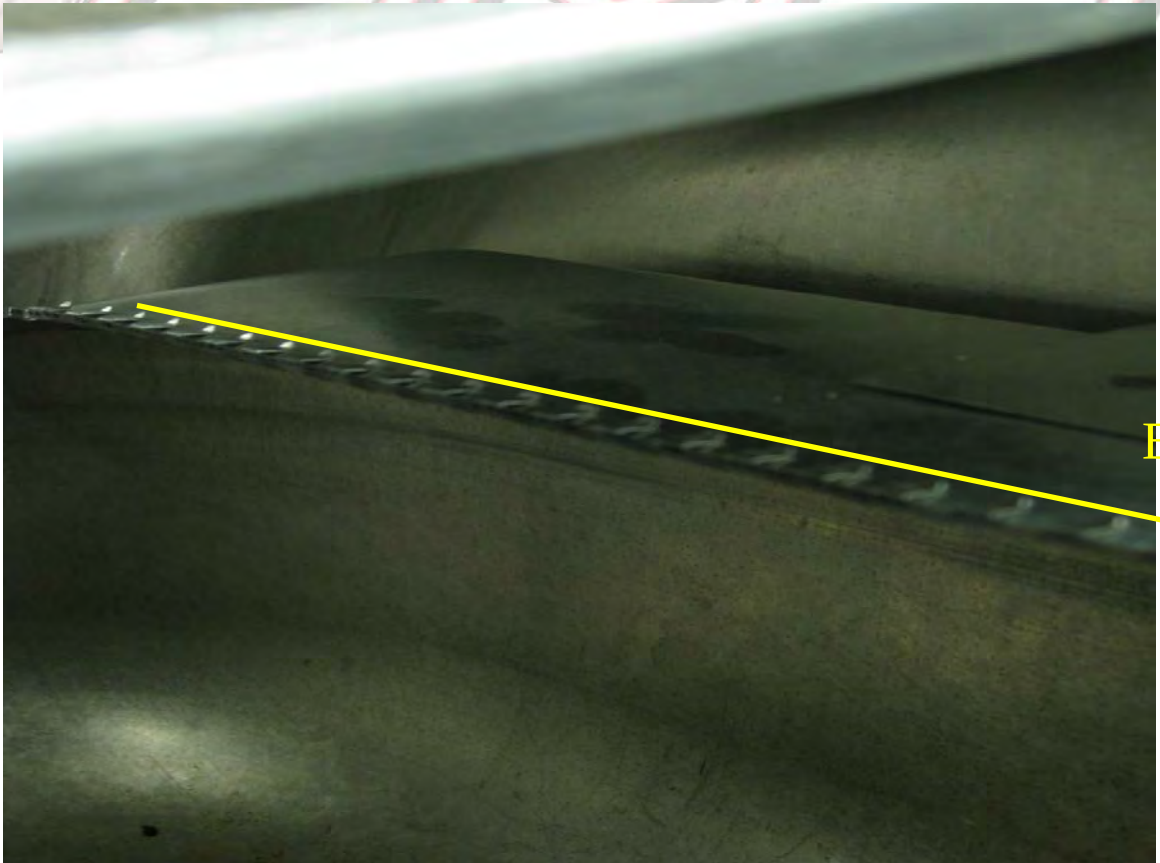
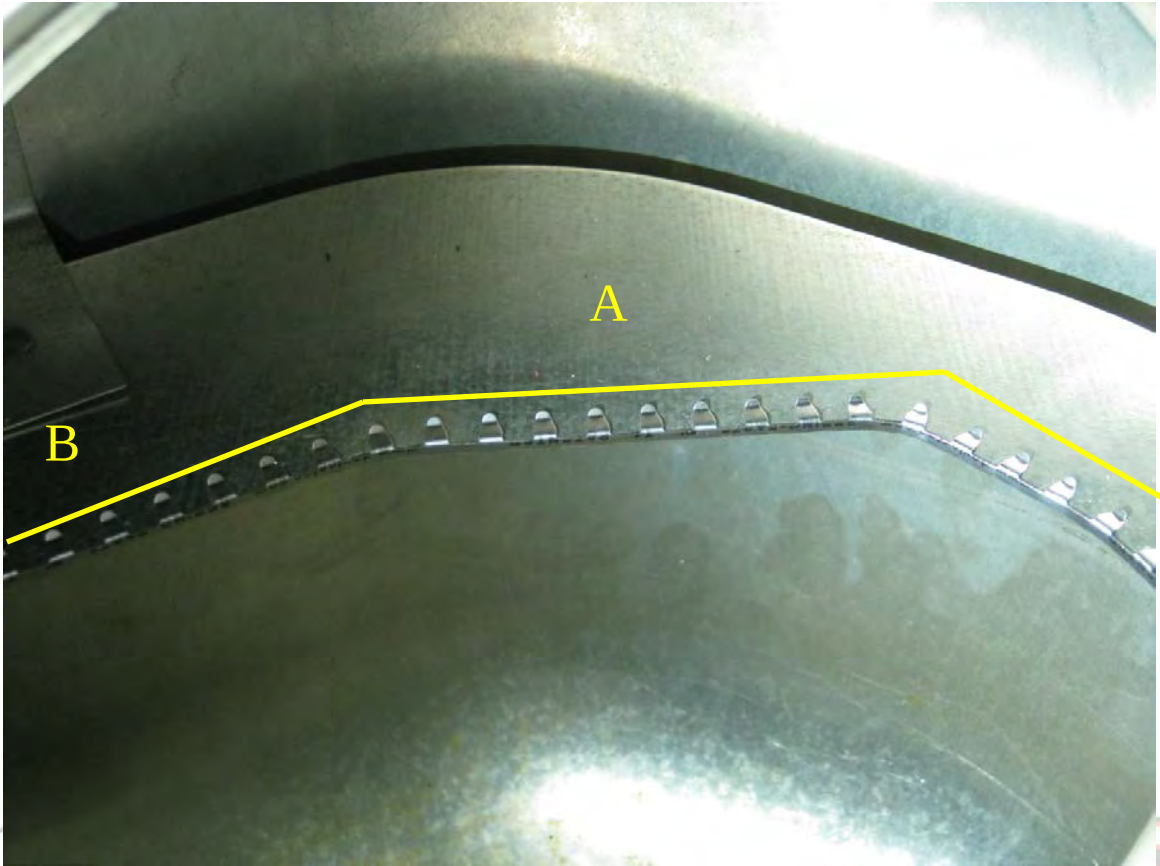


Now the in-tank installation begins.

The Nissan GT-R fuel tank is baffled to try and keep fuel around the fuel pump assembly during accelerating, braking, and hard cornering. These baffles have sharp edges which may cut into the fuel-safe lines included with the AMS GT-R Alpha Fuel System.

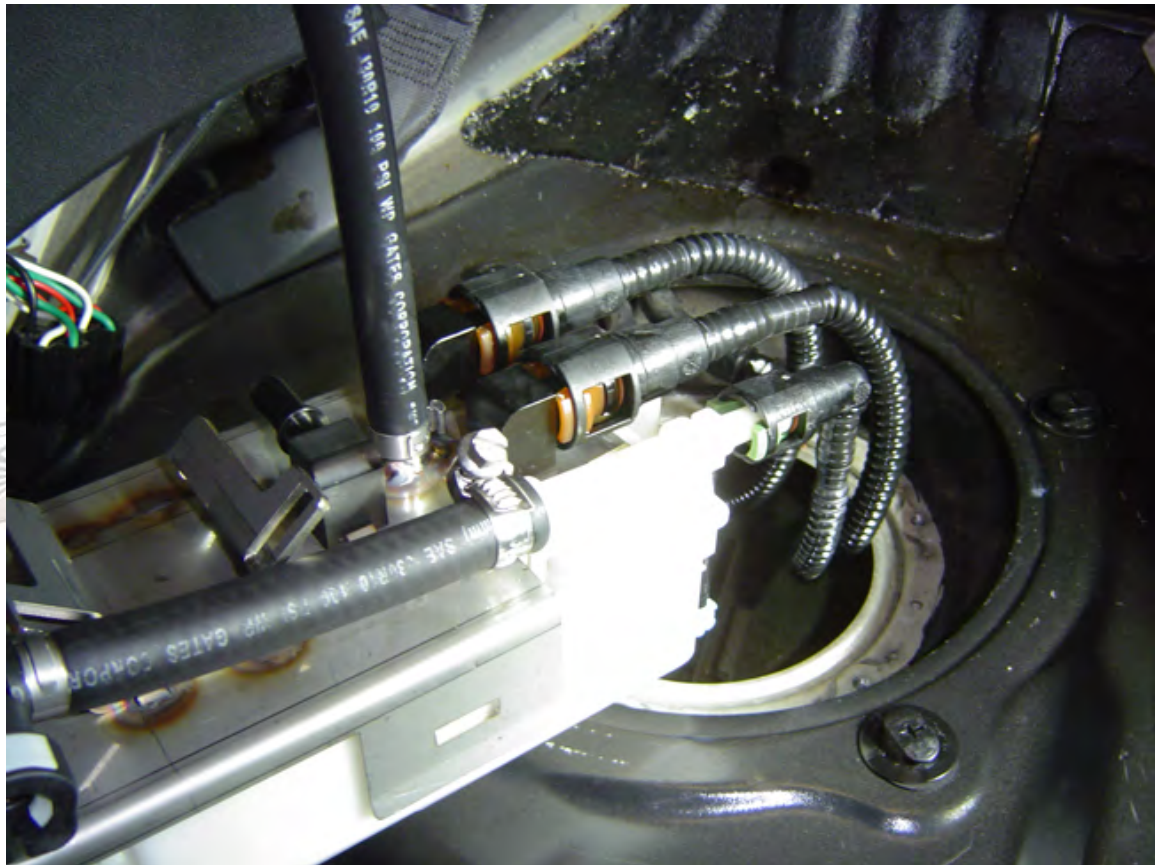
As an extra precautionary measure there are 2 sections of grommet edging included that need to be installed BEFORE the installation of your AMS GT-R Alpha Fuel System. The short section installs vertically while the long section installs horizontally as shown below along the yellow lines (the letters “A” and “B” are to be used as a continuation reference since the entire baffle system could not be shown with just one picture).





At this point you can place the pump mount assembly into the fuel tank where it will be final assembled. The following pictures show it outside of the tank for a better view.

15. Once in the tank you will first be connecting the lines that are in the tank to the rear of the sending unit. The two large lines can go on either port, it doesn't matter. Dip the lines into fuel for lubrication and snap them onto the ports on the sending unit.



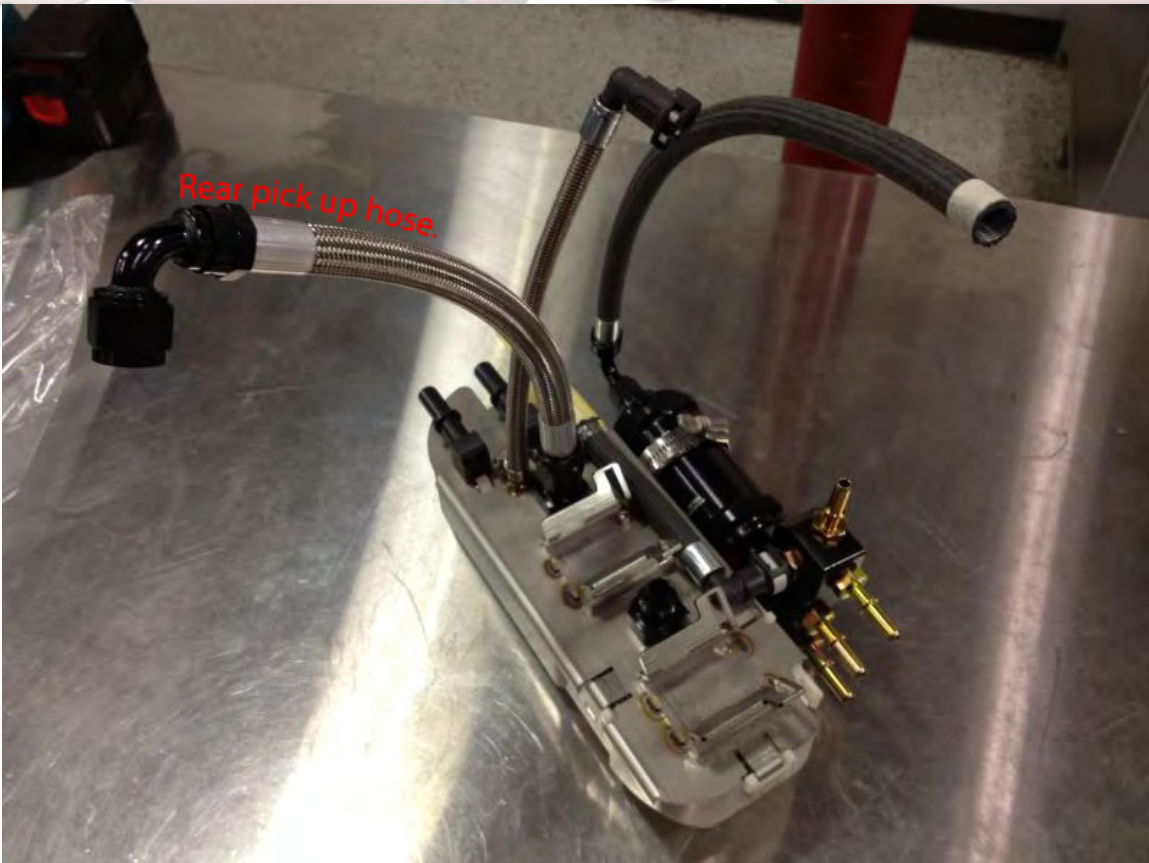
16. Next you will be installing the fuel filter and distribution block assembly. Thread the hose clamp through the tab on the side of the fuel pump mounting bracket. Then place the fuel filter in the clamp and clip the side fitting into the hose that you installed onto the fuel return fitting earlier and tighten the clamp.



17. Now it is time to install the fuel pumps. Begin by connecting their power wires as shown below using the supplied SS nuts and star washers. It doesn't matter which pump gets what set of wires but as mentioned before you must keep the grounds with their respective power wires.



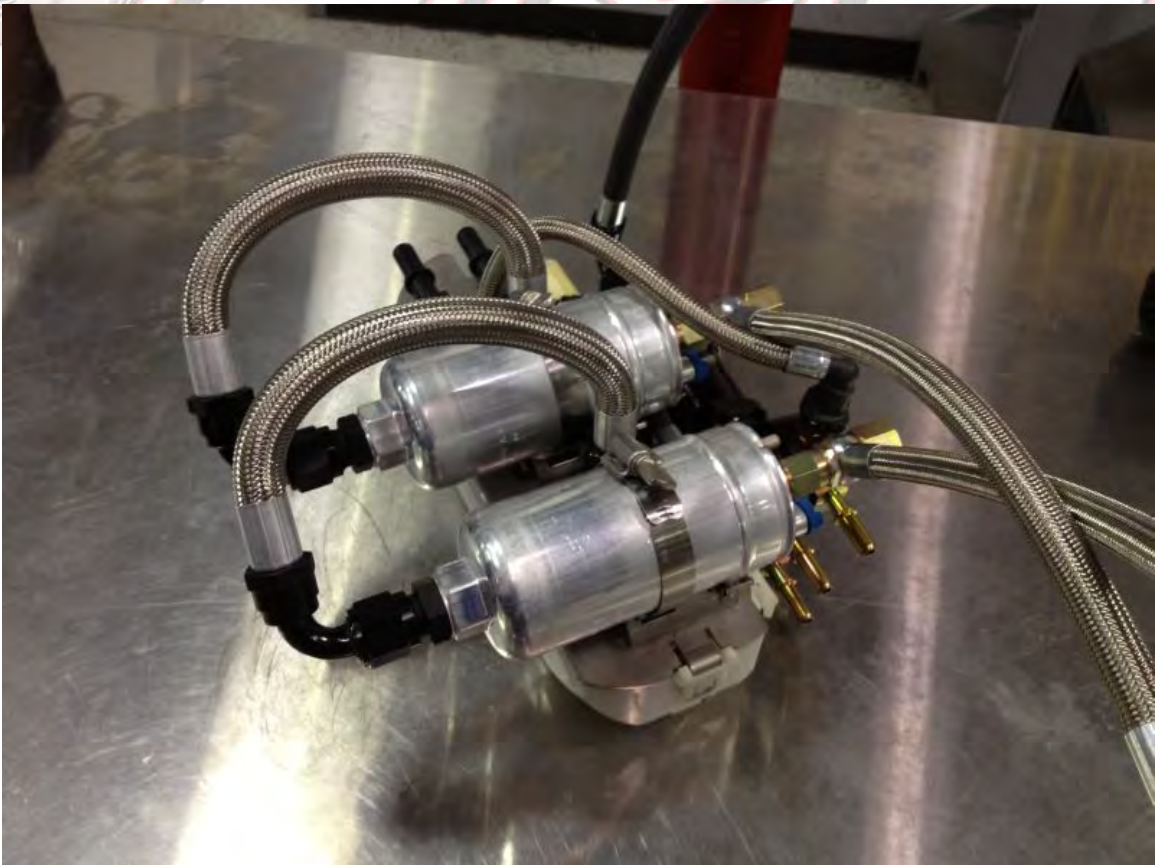
18. Begin by installing the pickup hose for the rear pump.



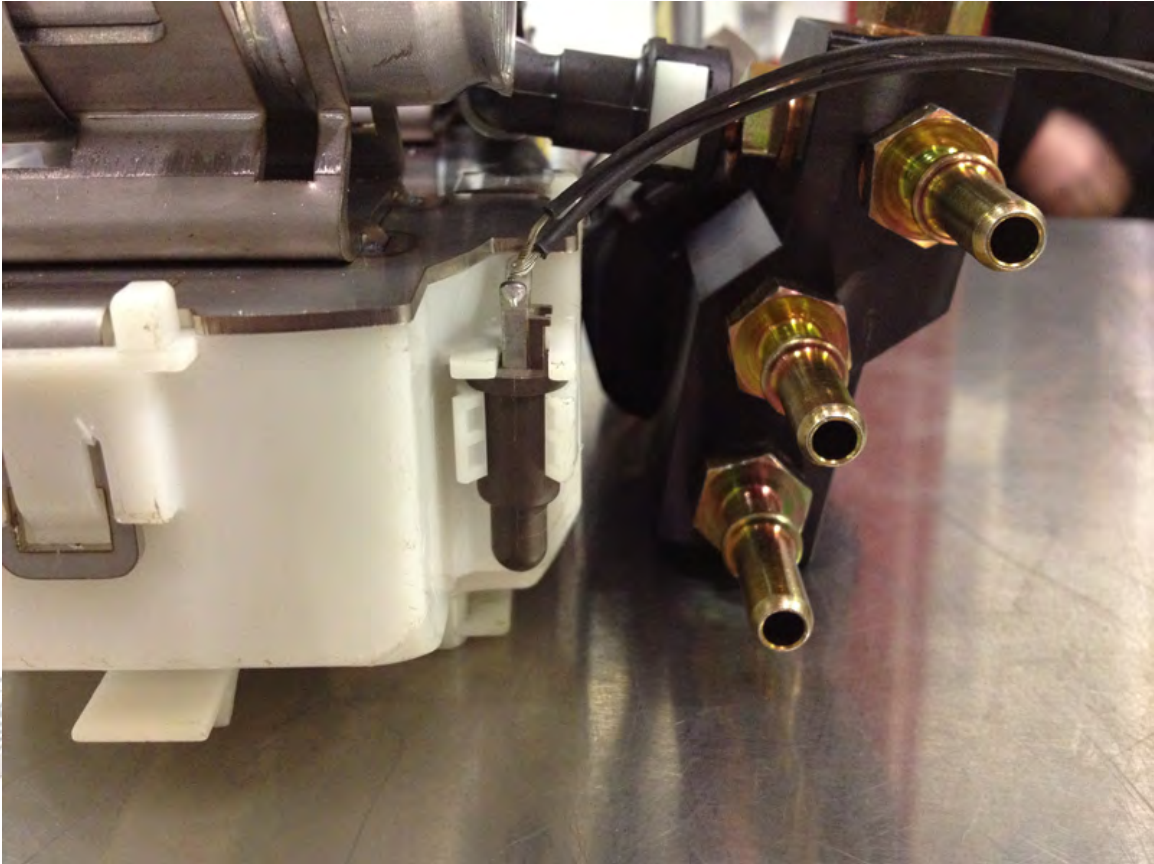
19. Next slide the clamp for the rear pump in place and lay the pump in the mount with the ridge in the slot on the driver's side of the mount. Tighten the clamp just enough to locate the pump, don't final tighten it yet. The pump should be positioned so the electrical connections are horizontal. After the pump is located properly connect the pickup hose to the bottom of the pump. After that, clip the line coming from the top plate to the top port of the distribution block.



20. Install the front pump in the same fashion.



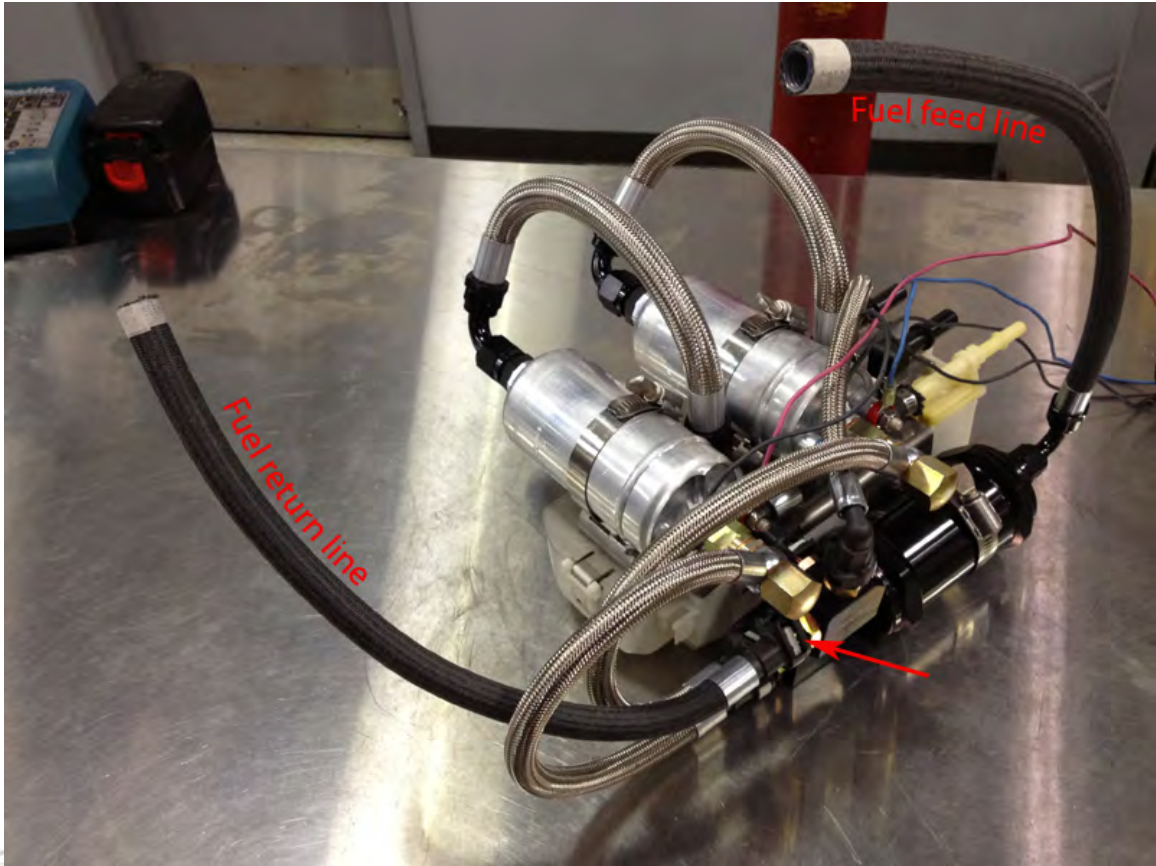
21. Now would be a good time to clip in the fuel temp sensor. Note how it is installed, it is offset. At this time you can also slide the whole assembly back into the channels in the fuel tank until it clicks in place and doesn't move.



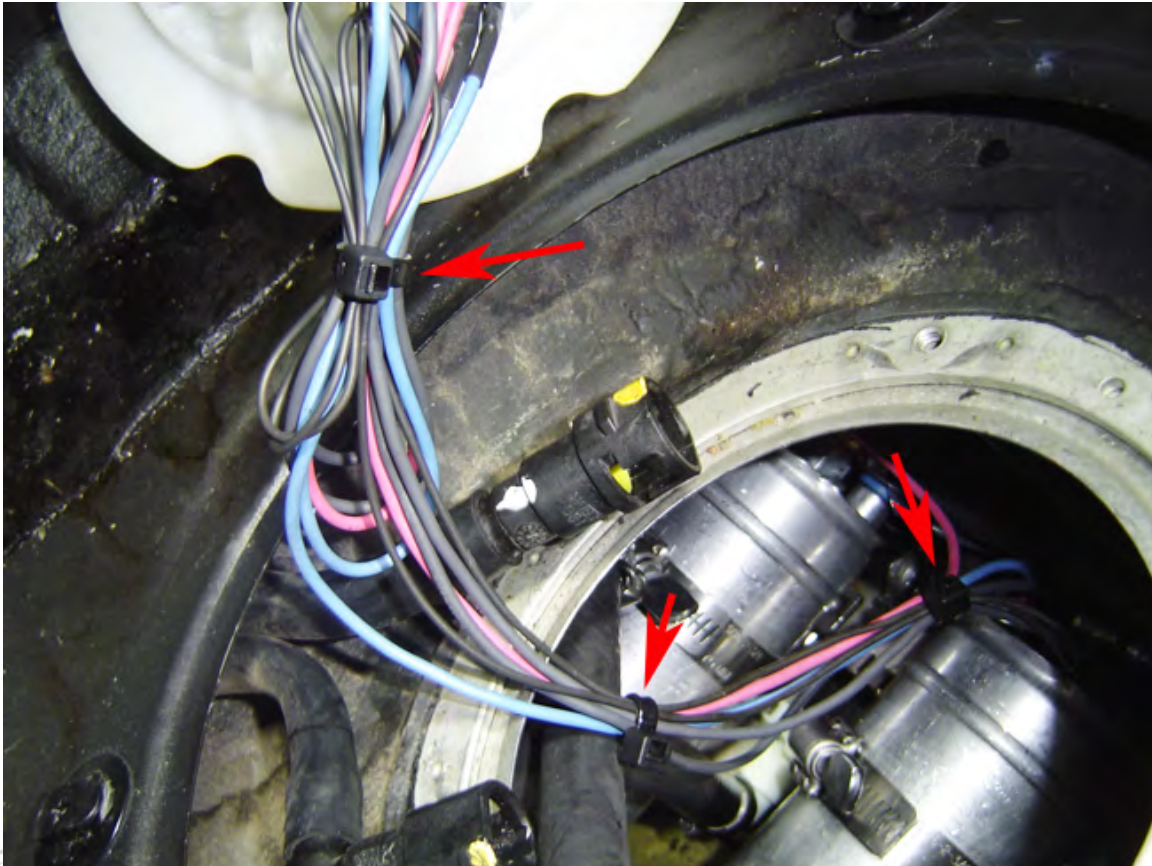
22. Snap the fuel pump outlet lines to the two bottom ports of the distribution block. Once both lines are connected take a look around and make sure the lines aren't rubbing on any sharp edges inside the tank, if they are you can pivot the fuel pumps as needed to move the lines. Finally, tighten the pump clamps.



23. At this point you can clip the return line onto the last port of the distribution block, this should be the top horizontal fitting. This should be the last hose you have, it will have a straight quick connect fitting on one side and nothing on the other.

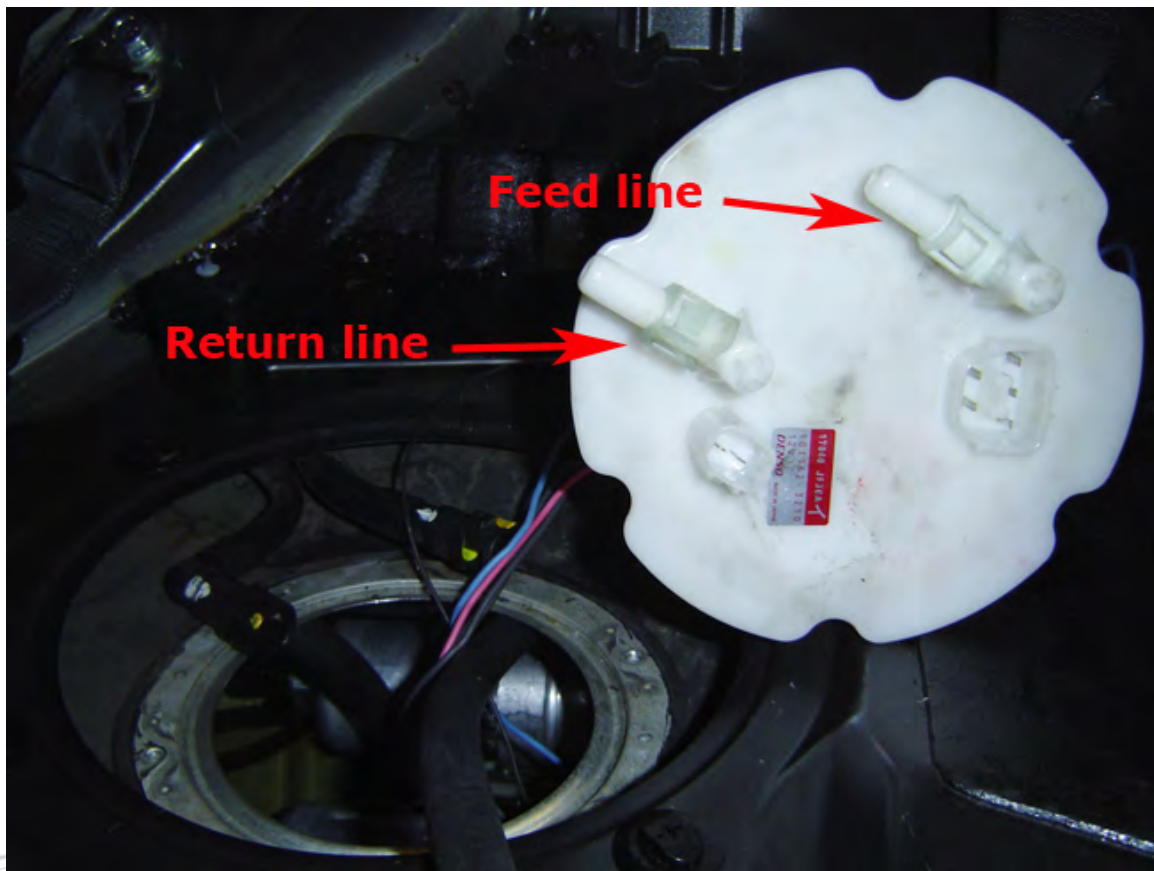


24. Now you will have two hoses left to connect, go ahead and pull them out of the fuel tank in preparation of connecting them to the top sending unit plate. You can also use the supplied zip ties and organize the wiring as you see fit. The main idea here is to keep it as short as possible and near the back of the tank away from the level sensing arm.



25. You can now connect the last two lines to the sending unit plate but first the feed and return need to be determined. Looking at the lines that connect to the top of the sending unit on the outside, the straight fitting is the feed line and the 90° fitting is the return.

Connect the line coming from the fuel filter to the feed port and the line from the distribution block to the return port. Clamp with the supplied hose clamps.



26. Re-install the sending unit carefully. Watch it for as long as possible and make sure that no hoses get caught or rub against the level sensing arm. Be sure to place the blue o-ring in place, and tighten down the black ring. Re-connect the feed and return lines. At this point you can now re-wire the fuel pumps following the instructions next.



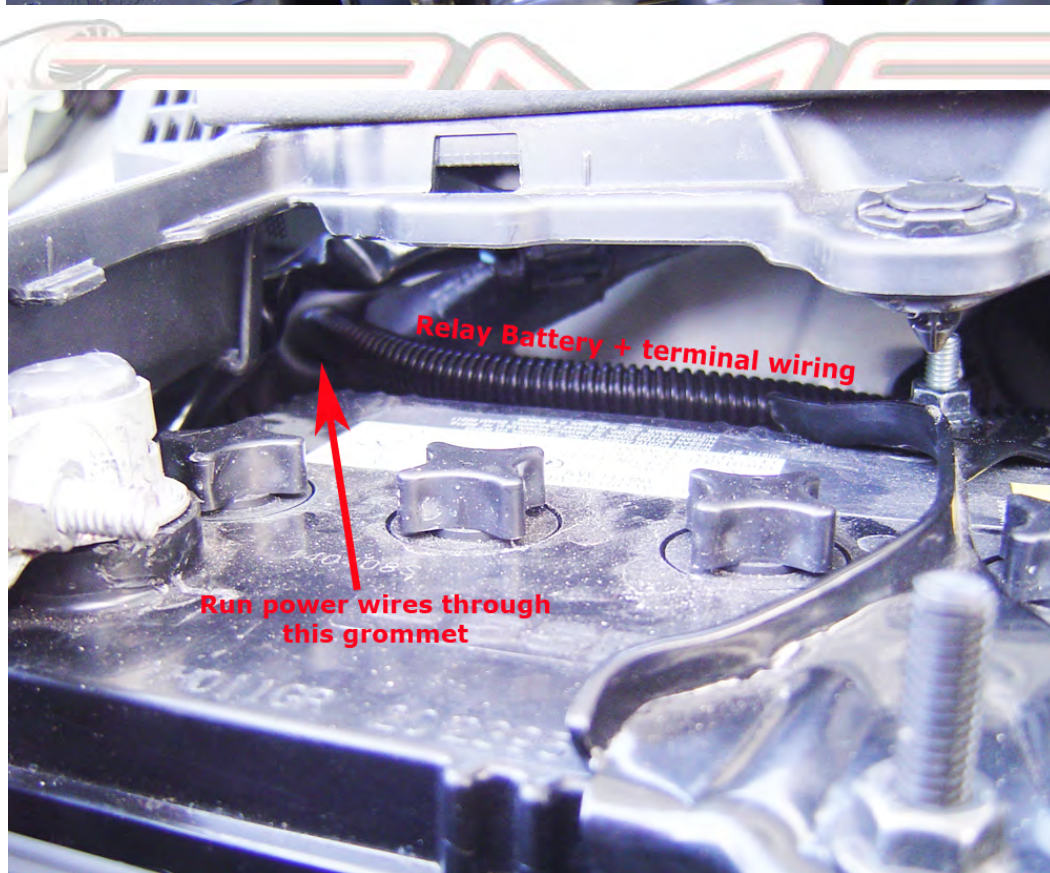
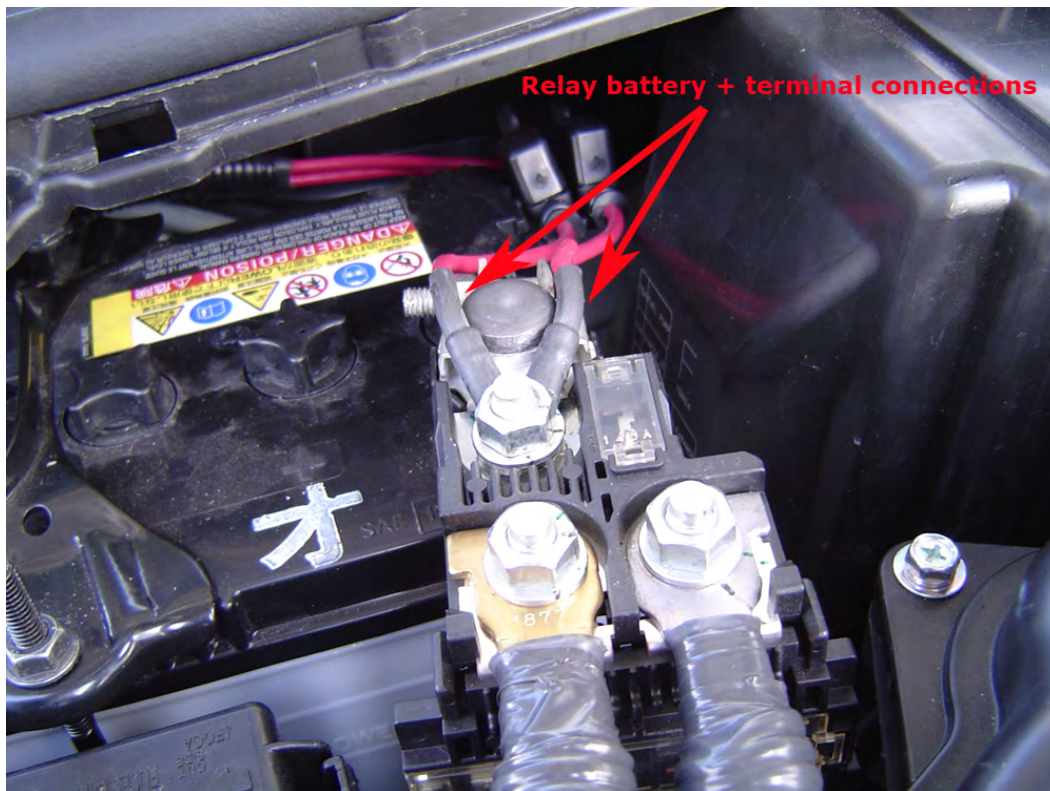
At this point you can now install our fuel pump rewire and hobbs switch kit. This will supply full battery voltage to the fuel pumps for maximum flow.

Packing List:

- 2 Relays w/ Harnesses
- 4 Blue Ring Terminals
- 8 14G-16G Butt Connectors
- 4 18G-22G Butt Connectors
- 20' 14G Wire
- 2 Fuse Holders w/ 30A fuses
- 6" 1/8 Heat Shrink
- 12" 3/16" Heat Shrink
- Hobbs switch w/ install parts

Installation Instruction:

- 1) Disconnect the negative battery cable. Install both fuse holders at the battery connecting them to the positive battery harness with a ring terminal. Connect a wire to each fuse holder using a butt connector. Run wires from each fuse holder back to the fuel pump area. This area is under the rear right seat cushion. I ran the wires into the car through a small slit I made in the factory engine wire harness grommet. This grommet is on the firewall behind the battery. I removed the sill plates and routed the wires back under the carpet. The wires from the battery get attached to wire 30 of each relay harness using a butt connector. The relay harness wire numbers are labeled on the bottom of the relay.

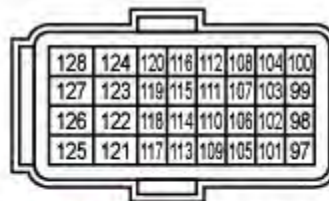


- 2) At this point you can now install the Hobbs switch that is used to turn on the 2nd fuel pump when 10 psi of boost is reached. Begin by running a boost source line into the cabin through the harness grommet in the same fashion as the power wires, this line must come from the intake manifold. IF you have a boost gauge in the car you can tap into that line instead of running a new one.

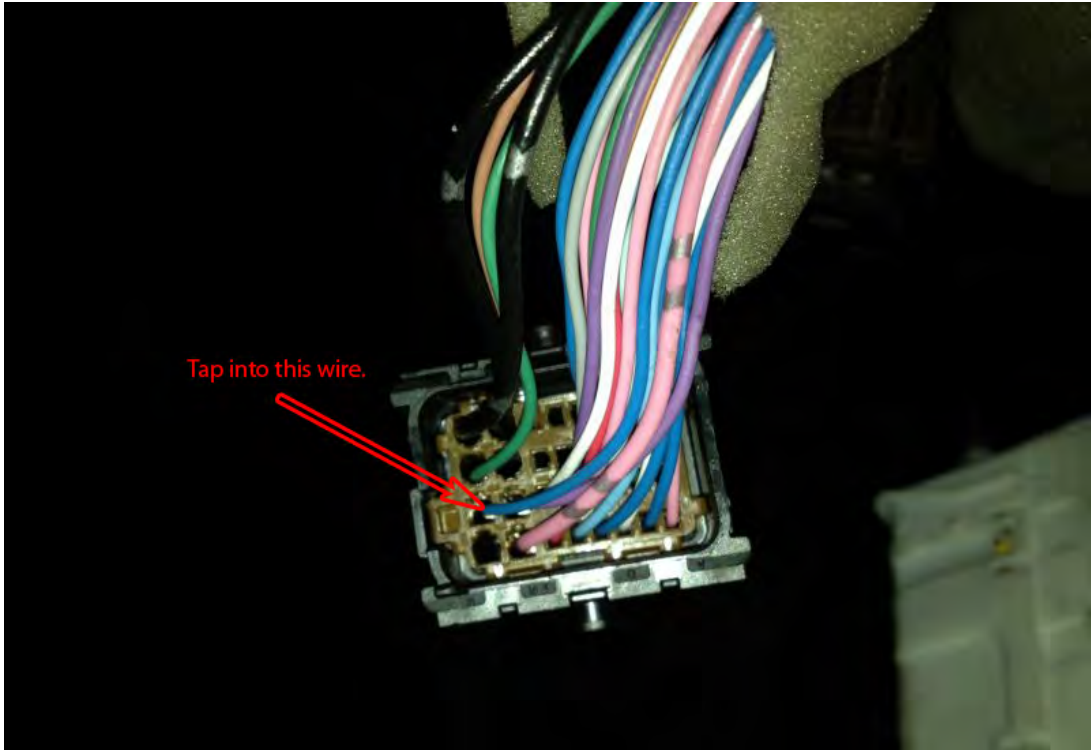




- 3) Connect this line to the Hobbs switch and mount the switch near the ECU. Next find pin 126 of the Grey colored ECU connector; this is the connector farthest back when referencing the front of the car. This wire will be blue. Tap one side of the Hobbs harness into this wire using the vampire clip and spade connector. The other Hobbs harness wire goes to a good ground point.



Pin	Color	Function
121	P	VBR
122	V	VBR
124	B	GND
126	L	FPR2
127	G	MOTRLY
128	B	GND



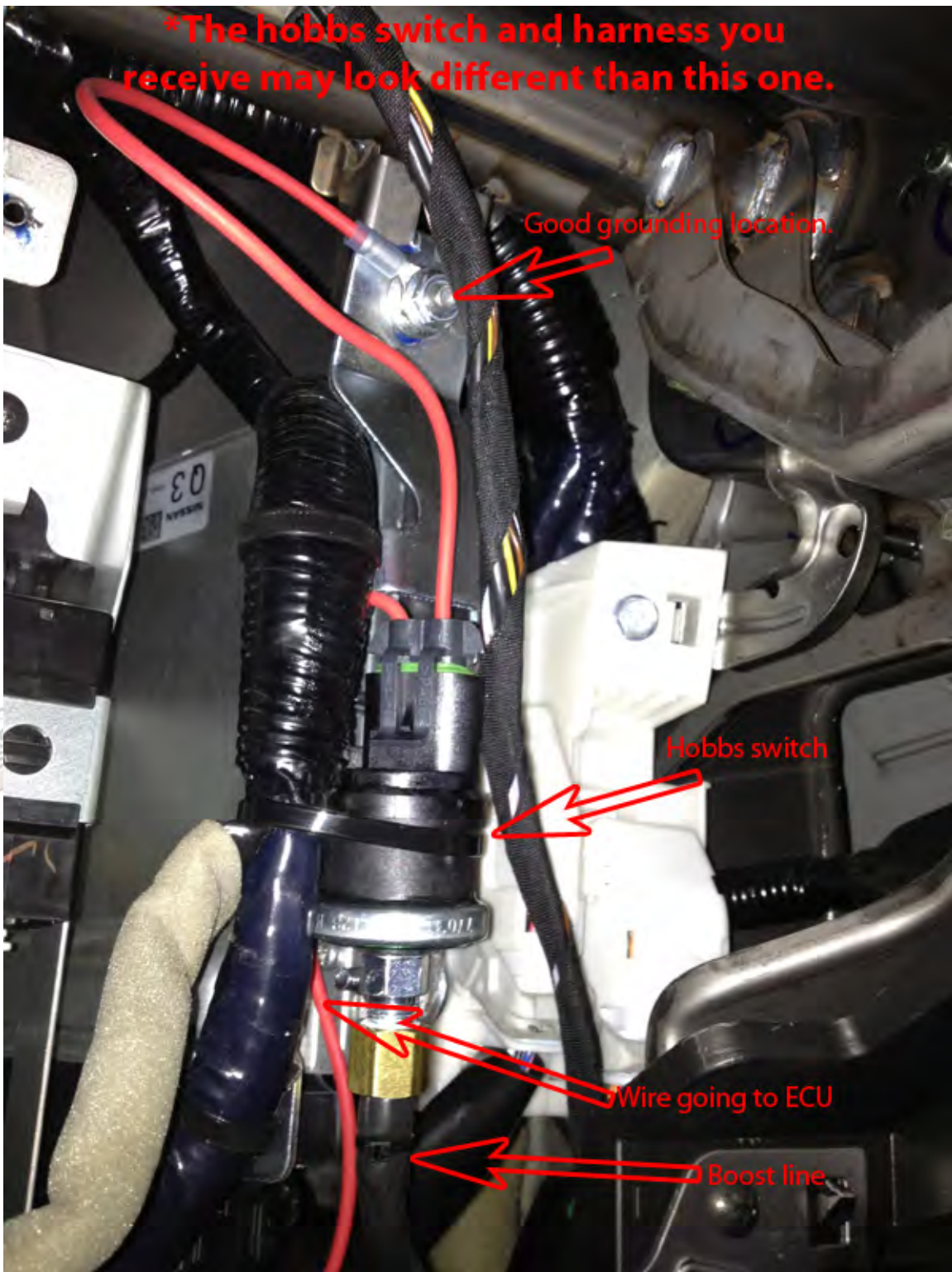
***The hobbs switch and harness you receive may look different than this one.**

Good grounding location.

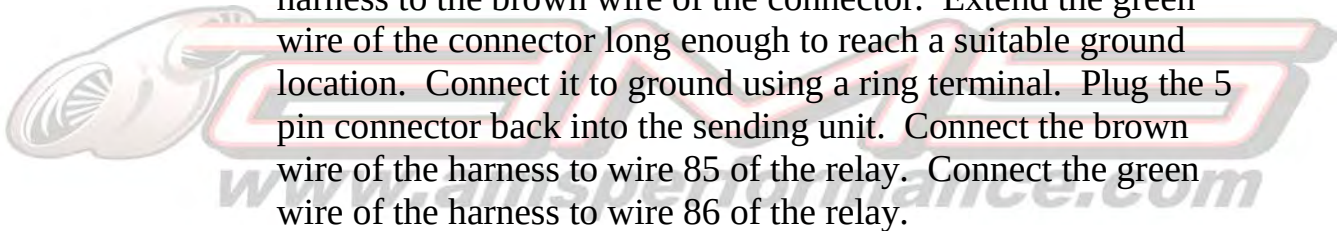
Hobbs switch

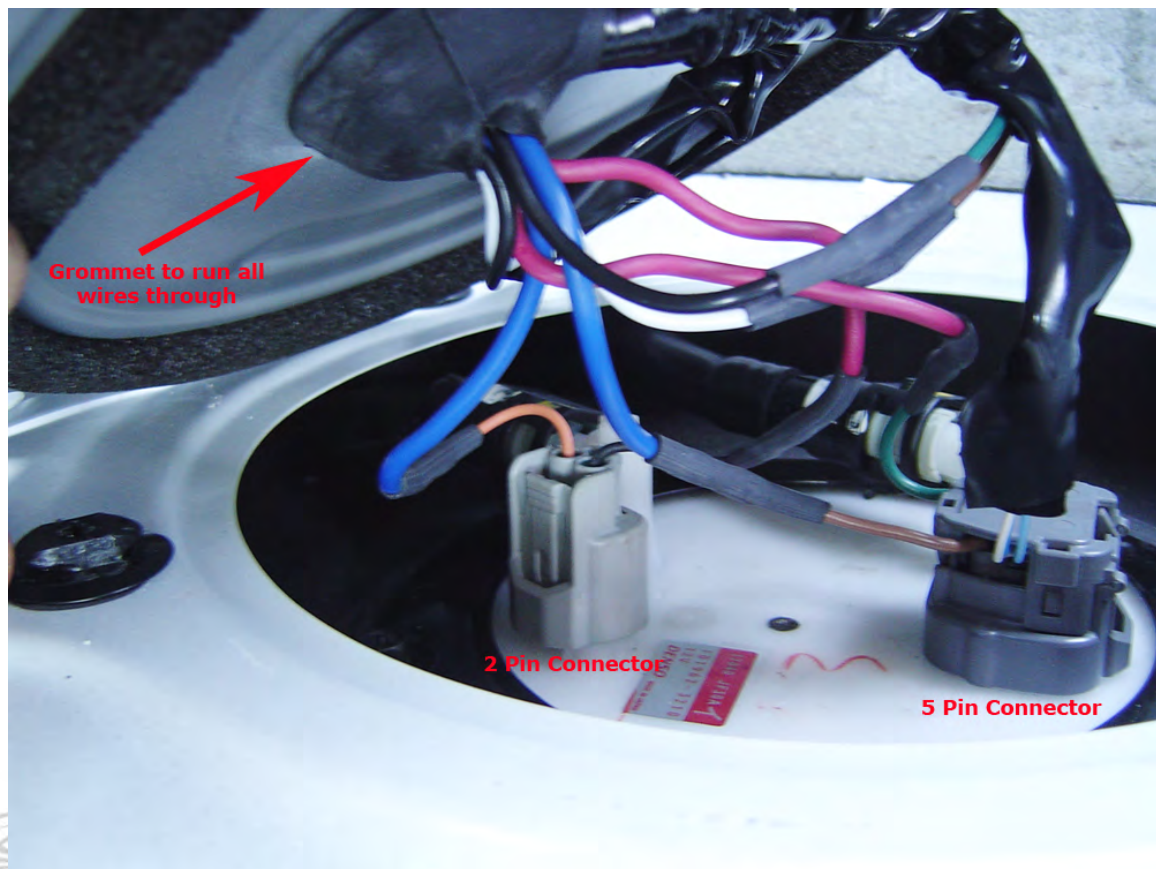
Wire going to ECU

Boost line



- 4) Remove the access cover and unplug both electrical connectors at the sending unit. Wire up one relay at a time.
- a. Cut the 2 pin connector off the factory harness leaving 1" of wiring on the connector side. Connect wire 87 of the relay harness to the orange wire of the connector using a butt connector. All relay wires should be routed through the grommet in the access panel to prevent wires from getting pinched or chaffed. Make wire connections using provided butt connectors. Extend the black wire of the connector long enough to reach a suitable ground. Connect it to ground using a ring terminal. Plug the 2 pin connector back into the sending unit. Connect the orange wire of the harness to wire 85 of the relay harness. Connect the black wire of the harness to wire 86 of the relay harness.
 - b. Cut the two thicker wires of the 5 pin connector leaving 1" of wiring on the connector side. Connect wire 87 of the relay harness to the brown wire of the connector. Extend the green wire of the connector long enough to reach a suitable ground location. Connect it to ground using a ring terminal. Plug the 5 pin connector back into the sending unit. Connect the brown wire of the harness to wire 85 of the relay. Connect the green wire of the harness to wire 86 of the relay.





- 5) Reinstall the access panel making sure not to pinch any wires. Secure the relays off to the side and route the wiring so it will not get pinched by the seat cushion. Reinstall the seat cushion and put the interior back together. Install the fuses in the fuse holder and test fuel system operation.

